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EXAMINER	
WANG, KENT F	

ART UNIT	PAPER NUMBER
2622	

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12/31/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/771,669	LEE ET AL.	
	Examiner	Art Unit	
	KENT WANG	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The reference listed on the disclosure statement (IDS) submitted on 12/02/2009 has being considered by the examiner (see attached PTO 1449).

Response to Arguments

2. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 12, and 17-18 are rejected under 35 U.S.C. § 102(b) as being anticipated by Bork (US 6,633,932).

Regarding claim 12, Bork discloses a USB cable (i.e. a power cable 16 or 58, Fig 14) for transferring power from a USB receptacle (i.e. an USB receptacle on portable computer 26) to a portable electronic device (such as cellular telephone 14) with a power and data port (a

USB connector 38), a battery (i.e. a cell battery) and a device controller (a USB function controller), the USB cable comprising:

- a first connector (a connector 38, Fig 14) configured to mate with the USB receptacle (Fig 14) (col. 6, 26-42);
- a second connector (a connector 40, Fig 14) configured to mate with the power (a first lead 48 and a second lead 50) and data port (a first lead 52 and a second lead 54) (Col. 6, lines 43-65 and Fig 14);
- at least two wires electrically connecting the first and second connectors (i.e. two-wire cable 16 or a four-wire cable 58) (col. 6, lines 27-65); and
- a USB battery charger (electronic circuitry 42) enclosed within the second connector (the electronic circuitry 42 within connector 40), the USB battery charger (42) including a charging portion (i.e. a regulator 44, Fig 14) that communicates with the device controller (i.e. a USB function controller 46) for receiving at least one signal relative to the battery, the charging portion (44) adjusting power received from the USB receptacle relative to the at least one signal for charging the battery (Figs 14-21 and col. 5, line 41 to col. 7, line 55, Bork).

Regarding claim 17, the limitations of claims 12 are taught above, Bork discloses a USB controller (a USB function controller 46 or 64, Figs 14, 17 and 20) for controlling bidirectional data transmission between the USB receptacle and the device controller (electronic circuitry within connector 60 converts the voltage outputted by the USB of

portable computer 26 to a voltage that may be used to power and/or recharge the batteries in cellular phone 14 and also facilitates the movement of data back and forth between portable computer 26 and phone 14) (col. 6, line 66 to col. 7, line 12, Bork).

Regarding claim 18, the limitations of claims 12 and 17 are taught above, Bork discloses the at least two wires (i.e. two-wire cable 16 or a four-wire cable 58) (col. 6, lines 27-65) comprises:

- a first portion (a first lead 52 and a second lead 54) that interconnects a data interface of the first connector (a connector 38, Fig 14) with the USB controller (a USB function controller 46 or 64, Figs 14, 17 and 20); and
- a second portion (a first lead 48 and a second lead 50) that interconnects a power interface of the first connector (a connector 38, Fig 14) with the charging portion (i.e. a regulator 44, Fig 14) (Col. 6, lines 43-65 and Fig 14, Bork).

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang (US 2002/0145403) in view of Hwang (US 6,392,384).

Regarding claim 1, Wang discloses an apparatus (charger 11, Fig 1) for charging a battery (chargeable battery 409, Fig 4) of a portable electronic device (a digital camera 12, Fig 1) that includes a main controller (computer detection circuit 416, Fig 4) controlling overall operation of the portable electronic device (the computer/TV connection detection

circuit 416 are connected to the central processing unit 407 of the digital camera 12 to control the digital camera 12 via the signal contact 432 of the charger 11 and the signal contact 422 of the digital camera 12), the portable electronic device being connected to a computer USB port (the computer connecting port 418 is USB (universal serial bus) interface, Fig 4), the apparatus transferring power from the computer (personal computer 13, Fig 1) through the USB port (418) ([0016]-[0019], Wang).

Wang does not disclose a charger control portion electrically connected with the main controller, the charger control portion generating charge control signals at one or more outputs according to a battery type selection signal that is output from the main controller and received at an input of the charger control portion; and a charging portion electrically connected with the charger control portion and receiving charge control signals from the one or more outputs of the charger control portion. However, Hwang discloses a charger control portion (charging current and voltage control circuit 34, Fig 2A(2)) electrically connected with the main controller (microprocessor 46, Fig 2B), the charger control portion (34) generating charge control signals (generate a switching control signal) at one or more outputs according to a battery type selection signal (charging voltage selection control signals according to the detected voltage types of the batteries) that is output from the main controller (46) and received at an input of the charger control portion (34), the battery type selection signal distinguishing the battery type of a battery from a plurality of possible battery types, wherein differing battery types have differing battery charge characteristics (the microprocessor 46 detects the voltage types of the first and second batteries loaded in the first and second pockets based on the values of their internal resistances detected across

resistors R64 and R65 respectively connected with the C/F terminals of the batteries in order to generate first and second charging voltage selection control signals according to the detected voltage types of the batteries) (col. 4, lines 38-63 and Figs 2A(1), 2A(2) and 2B, Hwang); a charging portion (a first charging voltage supply control circuit 40, Fig 2A(2)) electrically connected with the charger control portion (34) and receiving charge control signals (a switching control signal) from the one or more outputs of the charger control portion (34), wherein the charging portion (40) operates to charge the battery (a first battery loaded in pocket `B`) according to the charge control signals (a switching control signal) that differ according to battery type generated by the charger control portion (col. 4, lines 16-63, Hwang).

Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the charger as taught by Hwang into Wang's device, so as the system is capable to provide a battery charging apparatus wherein the multiple batteries inserted in the multiple pockets of the battery charger may be precisely charged simultaneously by using a single voltage source, thereby reducing its size and cost (col. 10, lines 64-67, Hwang).

Regarding claim 2, the limitations of claim 1 are taught above, Hwang discloses the charge control signals of the control portion comprise a charge start signal to enable output of the charging portion (a switching control signal) (col. 4, lines 16-63, Hwang).

Regarding claim 3, the limitations of claim 1 are taught above, Hwang discloses the charge control signals of the control portion comprise a battery type signal (i.e. voltage type

of the battery) to control an output voltage level according to the battery selection signal (col. 4, lines 38-63, Hwang).

Regarding claim 4, the limitations of claim 1 are taught above, Hwang discloses the charge control signals of the control portion (the charging current and voltage control circuit 34) comprise a charge voltage control signal and a charge current control signal, which are generated based on the detection of a charge current and a charge voltage from the charging portion (first charging voltage supply control circuit 40), to control the charge current and the charge voltage (a switching control signal for supplying the charging voltage fit for the voltage type of the battery, and a switching control signal according to the amount of the charging current detected from the charging current control circuit 32 to control the power switch 16) (col. 4, lines 16-63, Hwang).

Regarding claim 5, the limitations of claim 1 are taught above, Wang discloses a USB controller (a digital signal processor 405, Fig 4) for controlling bidirectional data transmission between the computer (personal computer 13) and the portable electronic device (a digital camera 12) ([0016]-[0019], Wang).

Regarding claim 6, the limitations of claim 1 are taught above, Wang discloses the battery selection signal is input by a user (The user can choose one of the options to process the data transmission between the computer and the digital camera) ([0024], Wang).

Regarding claim 7, the limitations of claim 1 are taught above, Hwang discloses the battery selection signal is input by a battery recognition apparatus (charging current and voltage control circuit 34, Fig 2A(2)) (col. 4, lines 38-63, Hwang).

Regarding claim 8, Wang discloses a digital camera (a digital camera 12, Fig 4) connected to a computer (personal computer 13, Fig 4) by USB (computer connecting USB port 418, Fig 4) to charge a battery (chargeable battery 409, Fig 4) by receiving power from the computer (13) through USB (418), the digital camera comprising: a digital camera controller (the computer/TV connection detection circuit 416 are connected to the central processing unit 407 of the digital camera 12 to control the digital camera 12 via the signal contact 432 of the charger 11 and the signal contact 422 of the digital camera 12); a USB charger including a USB controller (405) to transmit and receive data through a USB port (418) of the computer (13), a charging portion (a charging circuit 413, Fig 4), the charging portion operating to charge the battery (409); and a power converting portion to receive power from the battery that is charged by the charger and generate and output power having a plurality of voltage levels (DC/DC adapter 408 of the digital camera 12 to charge or supply power to the digital camera 12) ([0018], Wang).

Wang does not disclose a battery recognition apparatus that distinguishes a type of the battery from a plurality of possible battery types; the main controller generating a battery type selection signal that identifies the type of battery, a control portion to generate charge control signals corresponding to the battery type selection signal, and a charging portion electrically connected with the control portion. However, Hwang discloses a battery recognition apparatus (microprocessor 46, Fig 2B) that distinguishes a type of the battery from a plurality of possible battery types, wherein differing battery types have differing battery charge characteristics (detects the voltage types of the first and second batteries loaded in the first and second pockets based on the values of their internal resistances

detected across resistors R64 and R65 respectively connected with the C/F terminals of the batteries in order to generate first and second charging voltage selection control signals according to the detected voltage types of the batteries); the main controller (microprocessor 46, Fig 2B) generating a battery type selection signal that identifies the type of battery (charging voltage selection control signals), a control portion (charging current and voltage control circuit 34) to generate charge control signals (a switching control signal) corresponding to the battery type selection signal (charging voltage selection control signals), and a charging portion (first charging voltage supply control circuit 40) electrically connected with the control portion (34), the charging portion (40) operating to charge the battery according to the charge control signals that differ according to battery type from the control portion (col. 3, lines 6-24 and col. 4, lines 16-63, Hwang).

Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the microprocessor and charging current and voltage control circuit as taught by Hwang into Wang's device, so as the system is capable to provide a battery charging apparatus wherein the multiple batteries inserted in the multiple pockets of the battery charger may be precisely charged simultaneously by using a single voltage source, thereby reducing its size and cost (col. 10, lines 64-67, Hwang).

Regarding claim 9, the limitations of claim 8 are taught above, Hwang discloses the charge control signals (i.e. a switching control signal) of the control portion (a charging current and voltage control circuit 34) comprise a charge start signal to enable output of the charging portion (first charging voltage supply control circuit 40) (col. 4, lines 16-37, Hwang).

Regarding claim 10, the limitations of claim 8 are taught above, Hwang discloses the charge control signals (i.e. a switching control signal) of the control portion (a charging current and voltage control circuit 34) comprise a battery type signal (i.e. charging voltage selection control signals) to control an output voltage level according to the battery selection signal (col. 4, lines 38-63, Hwang).

Regarding claim 11, the limitations of claim 8 are taught above, Hwang discloses the charge control signals (i.e. a switching control signal) of the control portion (charging current and voltage control circuit 34) comprise a charge voltage control signal and a charge current control signal (i.e. charging voltage selection control signals), which are generated based on the detection of a charge current and a charge voltage from the charging portion (i.e. first charging 4, lines 16-63, Hwang).

4. Claims 13, 15-16, and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bork (US 6,633,932) in view of Fischer (US 6,946,817).

Regarding claim 13, the limitations of claim 12 are taught above, Bork does not disclose the charge control signals of the control portion comprise a charge start signal to enable output of the charging portion. However, Fischer discloses the charge control signals of the control portion comprise a charge start signal (soft-disconnect signal 212, Fig 3) to enable output of the charging portion (causes the soft-disconnect switch 202 to reset, disconnect and reconnect) (col. 6, lines 21-34 and Fig 3, Fischer).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the charger control circuit as taught by Fischer into Bork's device, so as

the system can be contemplated to provide a more efficient multiple mode charging operation (col. 8, line 62 to col. 9, line 27, Fischer).

Regarding claim 15, the limitations of claims 12-13 are taught above, Bork discloses the control portion (an electronic circuitry 42, Fig14) comprises the device controller (a USB function controller 46, Fig 14) (col. 6, lines 43-65, Bork).

Regarding claim 16, the limitations of claims 12-13 are taught above, Bork discloses a USB controller (a USB function controller 46 or 64, Figs 14, 17 and 20) for controlling bidirectional data transmission between the USB port and the device controller (electronic circuitry within connector 60 converts the voltage outputted by the USB of portable computer 26 to a voltage that may be used to power and/or recharge the batteries in cellular phone 14 and also facilitates the movement of data back and forth between portable computer 26 and phone 14) (col. 6, line 66 to col. 7, line 12, Bork).

Regarding claim 20, the limitations of claims 12-13 are taught above, Fischer discloses the charging portion (charging subsystem 16) comprises:

- a linear regulator (power supplies switch 414, Fig 5) for outputting power to the control portion (col. 7, lines 24-40 and col. 8, lines 10-51, Fischer);
- a reference voltage generating portion (charge current control 408, Fig 5) for adjusting a voltage charging the battery (col. 7, lines 41-67, Fischer); and
- a voltage/current regulator (a voltage regulator 412, Fig 5) including an attenuator, a current sense amplifier, a voltage regulation loop compensator and a current regulation loop compensator (col. 7, lines 24-40 and col. 8, lines 38-61, Fischer).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the charger control circuit as taught by Fischer into Wang and Hwang's device, so as the system can be contemplated to provide a more efficient multiple mode charging operation (col. 8, line 62 to col. 9, line 27, Fischer).

7. Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Bork (US 6,633,932) in view of Fischer (US 6,946,817), and further in view of Odaohhara (US 6,424,123).

Regarding claim 14, note the discussion of claims 12-13 above. Bork does not teach the control portion comprises a PWM module. However, Odaohhara teaches the control portion comprises a PWM module (PWM controller 112, Fig 4, Odaohhara) for outputting at least one of a voltage control signal (voltage control signal CS2, Fig 4) and a current control signal (charge control signal CS1, Fig 4) (col. 8, lines 26-34, col. 9, lines 18-26, and Fig 4, Odaohhara).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used a PWM controller as taught by Odaohhara as modified by Bork so that it can minimizing duty cycle to optimize efficiency of matching the reference voltage and boost current delivery (col. 9, lines 3-26, Odaohhara).

8. Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Bork (US 6,633,932) in view of Hsu (US 6,798,173).

Regarding claim 19, note the discussion of claim 12 above. Bork does not teach the first portion comprises a twisted-pair cable. However, Hsu teaches the first portion comprises a twisted-pair cable (col. 3, lines 10-52, Hsu).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used a twisted-pair cable as taught by Hsu as modified by Bork so that it can fitting the data transfer rates of USB and maximum length limitation and further canceling out electromagnetic interference, electromagnetic radiation and crosstalk between neighboring pairs (col. 3, lines 10-52, Hsu).

10. Claims 21-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang (US 2002/0145403) in view of Hwang (US 6,392,384), and further in view of Kerai (US 2002/0005707).

Regarding claim 21, the limitations of claim 1 are taught above, Kerai discloses a transistor (switch 28, Fig 2) externally connected to the charging portion, the transistor and the charging portion cooperating to charge the battery according to the charge control signals generated by the charger control portion (the charger control circuit 19 will cause the switch 28 to open preventing further depletion of the laptop computer battery and equally preventing overcharging of the handset battery) ([0034], Kerai).

Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the external transistor as taught by Kerai into Wang and Hwang's device, so as the system is capable to prevent the battery depletion and equally preventing overcharging of the handset battery ([0034], Kerai).

Regarding claim 22, the limitations of claim 8 are taught above, Wang and Hwang do not disclose a transistor externally connected to the charging portion, the transistor and the charging portion cooperating to charge the battery. However, Kerai discloses a transistor (switch 28, Fig 2) externally connected to the charging portion, the transistor and the

charging portion cooperating to charge the battery according to the charge control signals generated by the charger control portion (the charger control circuit 19 will cause the switch 28 to open preventing further depletion of the laptop computer battery and equally preventing overcharging of the handset battery) ([0034], Kerai).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Amoni et al. (US 5,884,086) provide a system and method for voltage switching to supply various voltages and power levels to a peripheral device wherein the communication of auxiliary (non-standard USB) voltage and current to downstream hub and peripheral devices in accordance with the needs of the downstream hub and/or peripheral devices;
- Matsuda (US 6,211,649) provide a USB cable, which is capable of transmitting data and charging a battery simultaneously for an external apparatus having a rechargeable battery such as a mobile phone connected with a USB port of a PC and a method for charging a battery of an external apparatus by using the USB cable;
- Kates et al. (US 6,337,557) disclose an external universal battery charging apparatus which can include external universal battery charger circuitry having at least one universal battery charger circuitry input and at least one universal battery charger circuitry output.

Inquiries

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Wang whose telephone number is 571-270-1703. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-270-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal/pair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TUAN HO/
Primary Examiner, Art Unit 2622

KW
28 December 2009